



**Securing the Conservation of biodiversity across
Administrative Levels and spatial, temporal, and
Ecological Scales**

Scale sensitivity and scale effectiveness of governance in biodiversity conservation

National regulatory model of biodiversity policy

POLAND

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1. Introduction

The goal of this report is to contribute to the understanding of the national regulatory model of biodiversity conservation in Poland taking into account scale-related issues. The report present development of biodiversity governance in Poland until 2011.

1.1 Methodology of the report

The report has been developed using a broad range of methodological tools such as desk study literature review, focus groups (FGI) and expert interviews. Additionally, information was also obtained from the General Directorate of the Environmental Protection (GDEP) employees and representatives of local authorities.

Desk study and literature review comprise of legal acts, various strategies and other public documents analysis. It also includes results of research studies and materials gathered from the popular science publications as well as articles in newspapers or internet resources.

Three focus groups were organized at each level of administration (local, regional and national). Every FGI lasted approximately 2 hours. Due to limited time, not all the subjects that were planned to be discussed were conversed in all of the groups. A short introduction to scale issues had been distributed to the participants prior to the discussion. Main assumptions and research questions were presented at the beginning of each focus group meeting. The discussions were moderated so that the raised issues and covered problems were relevant to the research questions.

Composition and evaluation of conducted FGI:

Regional level FGI was organized in Krakow on 25th January 2011. In total eight practitioners joined the meeting representing various organizations such as Regional Directorate of Environmental Protection [RDEP] (2 individuals); Regional Directorate of the State Forests [RDSF], Regional Directorate of Water Management [RDWM]; Babia Góra National Park [BgNP]; Institute of Nature Conservation, Polish Academy of Science [PAS]; The Society for Earth [TNZ]; Landscape Parks of Małopolska Region [LP]. Scale issues were discussed with ease during this group discussion. The discussion provided significant insight into the role of different forms of the protected areas in relation to the scale issues and institutional interplays among various administrative levels.

- FGI at the local level took place in Zator (municipality in Malopolska region) on 9th March 2011. Ten respondents represented the following organizations: Regional Directorate of Environmental Protection [RDEP] (2 individuals); Local representative of State Forest National Forest Holding [The State Forests]; Local administration (environmental departments) [LA] (3); Local Communities Association „Dolina Karpia” [DK]; Foundation „Dolina Karpia” (3) [NGO: DK]; The Society for Earth [TNZ]. Explicit discussion on scale issues was difficult in this group, as the concept of scale was too abstract for most of the participants. The group however, provided good examples confirming more general statements on institutional interplay made during the regional workshop. Also mismatches between various policies at the local level were discussed during this meeting.
- Central level FGI was organized in Warsaw on 25th March 2011. Among six participants there were representatives of General Directorate of Environmental Protec-

tion [GDEP] (2); Directorate General of the State Forests [DGSF]; OTOP (Birdlife International Polish National partner) (2); Institute of Nature Conservation, Polish Academy of Science [PAS]; WWF Poland; Ministry of Environment [ME]. The discussion helped to collect information about each administrative level from the national perspective. Many examples of institutional interplay and mismatches that are present in nature conservation system were highlighted by the participants, including relations between forestry and conservation administration (at each administrative level and across levels), interplay between state and non-state actors (both relations of conflict and cooperation), mismatches between goals of connectivity and spatial planning policies, the need for enhancing participation in managements of Natura 2000 and functioning of funding schemes for management plans.

- As a complementary part of the research we completed five expert interviews, all in June 2011. Each of them lasted approximately one hour. Experts, who were interviewed, were focused on disciplines related to ecology, nature conservation, and sustainable development but in most cases they were not focussed on one particular field. The respondents represented various professions such as: architect, water engineer, geographer, economist and biologist. Each of them possess a PhD title and work in a field of environmental protection or sustainable development. This selection of respondents allowed a broader perspective on scale-related issues. They delivered information and opinions on relations and transfer of knowledge between scientific community and practitioners or public institutions. Also scale issues and scale concept itself were broadly discussed. The expert interviews provided particularly good insight into the subjects such as spatial planning, regional connectivity and mismatches in nature conservation systems.

1.2. Perception of the threat and drivers of biodiversity loss in national policy

To be able to conduct a detailed analysis of public biodiversity conservation policies, the basic requirement is to accurately define not only the state of biodiversity but also the threats causing biodiversity loss. The factors influencing the state of biodiversity determine legislative regulation and actions undertaken by public institutions.

According to the Ministry of Environment (2003) the following factors are the main causes of biodiversity loss in Poland:

1. Urbanization: without taking into account the ecological consequences, urbanization processes are leading to the disappearance of natural areas and semi-natural habitats, impairing the functioning and the connectivity of ecosystem;

Eutrophication, uncontrolled drainage, acidification of soil, chemical pollution, succession: all of these factors change natural habitats /biotopes/ecosystems;

2. Changes in land-use: decrease in traditional farming practices leads to uncontrolled succession and changes in landscape structure, through fragmentation or devastation of habitats/ecosystems or unification of habitat mosaic;

3. Anthropogenic pressure: human pressure on problematic species (protected, though causing economic conflicts like beaver, cormorant, otter, etc), which limits population numbers;

4. Overexploitation: certain wild species (e.g.: fungi, herbs, snails, some of the game species) are overexploited, causing disturbances in the ecological equilibrium;

5. Synantrophication: changes in fauna and flora, synantrophication, introduction of alien species (both planned and accidental), causing the elimination of local species due to competition;

6. Genetic modification: effect (though this effect is still unclear) of “escapees” of GMO species on natural environment.

A major problem of sustaining biodiversity in Poland is changing agricultural practice. Mechanization of agriculture and creating large monocultures endangers the survival of these habitats. To date, there has been no effective action taken to promote sustainable development in agriculture and due to serious financial problems in this sector, protection of natural ecosystems connected to traditional farming has been neglected. Additionally, mosaic structure of the Polish rural landscape creates good circumstances to increase biodiversity, but this is a double-edged weapon. Mainly generalists and ubiquitous species will make use of such fragmented habitats, while species highly specialized and preferring the interior of a given habitat disappear (Andrzejewski and Weigle 2003, Głowaciński 2003).

Sustainable development plans (or plans of sustainable development of community) were prepared for a number of rural municipalities/communities; however those rarely consider biodiversity issues, or support traditional farming (Giordano 2006). Perspectives for improvement depend on better integration of local plans with regional and national plans or guidelines, as expertise on biodiversity is often scarce at a local level.

1.3. Governance challenges

The Polish Ministry of Environment (2008) described four strategic tasks for 2009 – 2012:

- I. Finishing biodiversity inventory and evaluation of biodiversity in Poland. It shall be a basis for finally closing the list of Natura 2000 areas in Poland.
- II. Implementing National strategy for conservation and sustainable use of biodiversity, concerning restoration/reclamation of habitats and ecosystems.
- III. Developing strategies and program for managing invasive alien species and protecting large carnivores.
- IV. Developing ecological corridors.

These tasks are given in the National Ecological Policy (Polish Ministry of Environment 2008) that aims to conserve biodiversity, especially since Poland ratified the Convention of Biological Diversity established in Rio de Janeiro in 1992. Currently the “Strategy for protection and sustainable use of biological diversity” is being implemented (2002), which pinpoints national priorities for conservation of biological diversity. The Strategy also concentrates on species and endemic communities, on categories that are the most characteristic for a given region. These are relicts, species threatened with extinction or endangered (Red List), key-stone species, utility species or charismatic in the eyes of local communities. These species are often relicts of large biocenoses that are left-over of primeval forests.

The challenge that results from Polish experiences with Natura 2000 implementation is definitely the change in governance itself. The approach in site designation has been still strictly

top-down and only some of many bottom-up initiatives have been successful, such as consultation schemes applied in Małopolska region and occasionally in cases of particular sites elsewhere. Although formal requirements of exchanging information with all stakeholders are being fulfilled, the real dialogue in implementing or managing protected areas is still something uncommon and exceptional. The biggest governance challenge now is definitely improvement and enhancement of dialogue in biodiversity management and creation of clear rules, regulations, requirements and procedures of management. Important improvement in this respect has been made with decentralizing management of Natura 2000 site, delegating more responsibilities and capacity to the regional level administration.

2. Key trends of regulatory environment over last 15–20 years

2.1. Administration

Since 1991, administration of the nature conservation in Poland had been hierarchical and centralized. The main levels of the administrations had been national, regional and local. On the national level, environment had been regulated by specialized institutions such as the Polish Ministry of the Environment (a former Ministry of the Environmental Protection, until 1999), while on the lower levels environment was managed by the general public administration institutions and its environmental subunits (Kotońska 2007). Such an organization of the nature conservation system has been heavily criticized, mainly due to its dependence on the regional authorities and due to the fact that the whole sector became politically pressured by the current governmental preferences. Implementing Natura 2000 program has also faced a variety of problems, particularly during the first years of the program implementation. Such problems stemmed from a limited number of an appropriately trained staff and not a real chance to increase relevance of the introduction process at the regional level. Formerly regional conservation institutions were responsible mainly for areas of landscape protection and environmental impact assessments. Natura 2000 implementation expanded their responsibilities without allocation of additional staff and financial resources. Important organizational changes occurred in 2008 when the General Directorate for Environmental Protection (GDEP) was established; the GDEP has 16 regional branches (one in each Polish voivodeship), with more independence from national, regional and local administration and politics. Together these institutions create vertical national – regional administration of nature conservation. The directorates are responsible for environmental impact assessments, management of natural resources and Natura 2000 network. The main goal of the institutional change was to improve time efficiency of procedures concerning regulation mentioned above.

Restructuring and finally establishing a new system of nature conservation over the country, GDEP was positively evaluated by all the focus groups respondents.

“Yes, I would also agree that calling GDEP and RDEP was a very good idea, which improved (...) nature conservation system comparing to that operating previously like 5 years earlier. Positive changes in the whole system appeared thanks to hiring new, young specialists, well educated, and open-minded. Although very competent currently they are overloaded with work. A proposal to decrease a number of the staff would be the worst thing which could happened nowadays”

Number of employees in public institutions of nature conservation has always been insufficient. Current structures are based on former numbers and structures of institutions. Despite rising responsibilities there is only little rise in employment (Kotońska 2007). Along with establishing directorates of environmental protection, former parallel structures based on regional administrations have been closed down (or: reorganized into new structures). To support new obligations of the directorates, considerable human resources were shifted from local management of land protection into the new institutions. Institutional changes strengthen conservation institutions by allowing independence from regional administration, regional development plans and financial resource allocation (The Council of Ministers 2008). A drawback of this reorganization is the weakening role of landscape protection areas (landscape parks). Together with the decrease of employees in administration, the responsibility

and large part of decision making were shifted to the regional and local authorities, which might cause more development pressure on the protected landscapes (Wertz 2009). Priority given to the implementation of Natura 2000 and fulfilling EU obligations towards nature conservation resulted in too little attention given to the development of effective instruments to support landscape protection. Main financial and human resources are allocated to habitat and species conservation, with little focus on the landscape protection and conservation.

Experts interviewed within the SCALES project expressed growing concern about biodiversity conservation at a landscape level. *“I have got a feeling that landscape degradation is much higher than biodiversity degradation in general.”*

The State Forests are responsible for managing timber resources and nature conservation in forests (78% of all forest areas in Poland). For the last 10 years the State Forests have been implementing changes in management, shifting from strictly economic-oriented management (timber production), that was favoured before 1990, towards multi-goal oriented management, including environmental and recreational uses of forests. Since the late 1990s new structures of Promotional Forest Complexes (Promocyjne Kompleksy Leśne) are being created in order to support new activities and responsibilities, providing trainings and education for state forestry employees, as well as conducting general promotion and education for various groups of people. Currently there are 19 Complexes, covering 1/8 of state forests, approximately 1 million ha (The Council of Ministers 2008). The State Forests are also responsible for all Natura 2000 sites designated within forests administrated by this institution. Adding Natura 2000 management to responsibilities of The State Forests wasn't accompanied by any additional resources for the institution, neither financial nor personal.

Biodiversity protection is also included in various activities of the Ministry of Agriculture and Rural Development in Poland. An accredited paying agency - the Agency for Restructuring and Modernization of Agriculture (ARMA; ARiMR - Agencja Restrukturyzacji i Modernizacji Rolnictwa) – was created in 1994 with the aim of supporting agriculture and rural development. It deals with the implementation of instruments co-financed from the European Union budget and provides aid from national funds. It cooperates with the Ministry of Agriculture and Rural Development and is under supervision of the Ministry of Finance. The structure of ARiMR is comprised of three levels - the Headquarters, 16 Regional Offices in each voivodeship and 314 Local Offices. ARiMR, among others, conducts The Rural Development Programme for 2007-2013 (and within 2nd axis - Agri-environmental programme).

2.2. Nature conservation

Contemporary nature protection includes many types of land protection, the most important are: 23 national parks (1% of Polish territory), 1423 nature reserves (0.6 % of territory), 120 landscape parks (8% of territory), 449 areas of landscape protection (22.5% of territory) and Natura 2000 sites (about 21% of territory, 959 sites). Different protected areas overlap, especially Natura 2000 sites with other types of land protection (e.g. all national parks are included in Natura 2000), as well as nature reserves with other forms of land protection. In total 32.3% of the country is under land protection. The oldest national parks were developed in the 1920s and later in the 1940s, while the most recent one was formed in 2001. Over the last 20 years the number of sites protected under different forms of nature protection has been rising (Fig. 1). From 1990 six new national parks have been developed, 3 new national parks and enlargement of one of the existing ones are considered. From 2000 the number of nature reserves has changed from 1307 to 1423 (Polish Ministry of the Environment 2009).

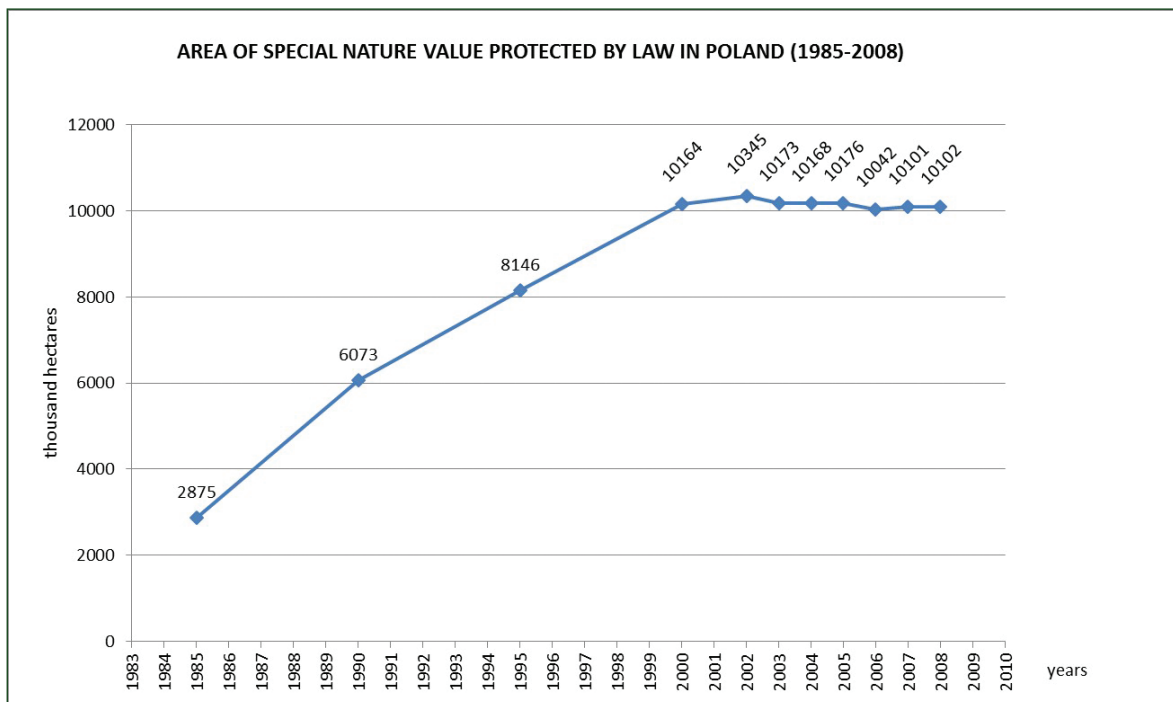


Figure 1. High nature value area protected by law in Poland between 1985 and 2008 (without Natura 2000 sites).

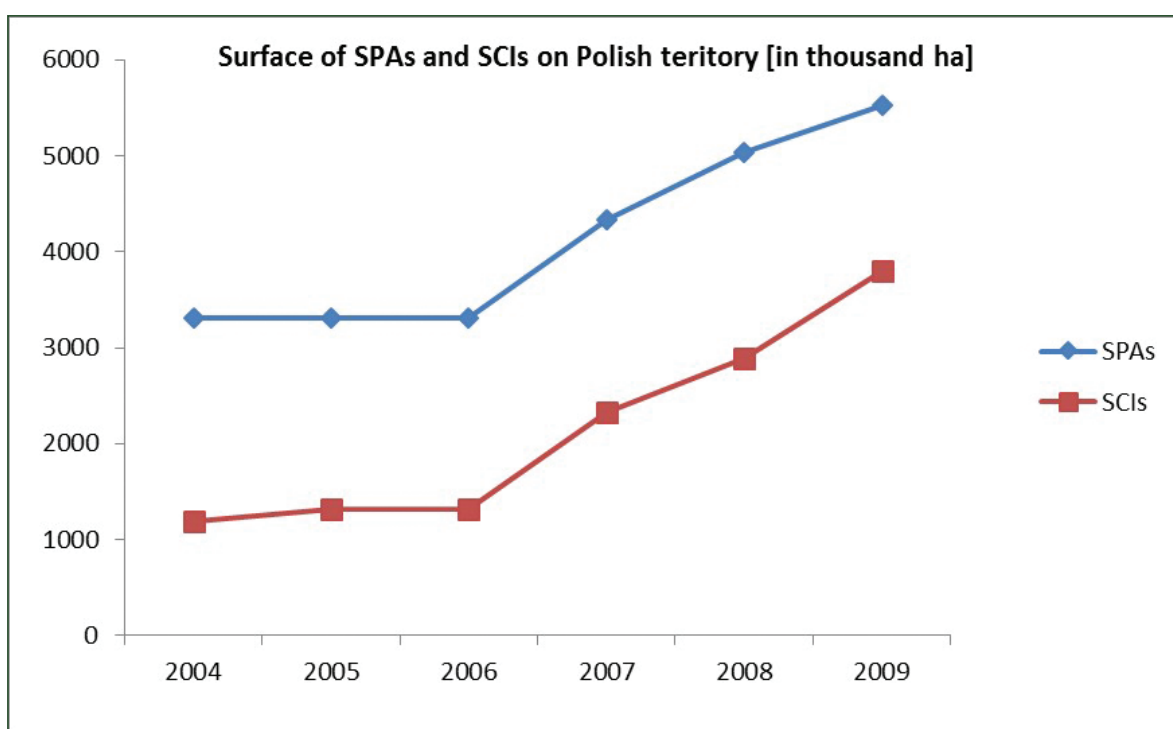


Figure 2. Surface of SPAs and SCIs on Polish territory (in thousand ha) between 2004 and 2009 (based on Natura 2000 Barometer). The graph represents designation process of the Natura 2000 network, which has been mostly completed in 2009. The numbers presented for the year 2009 will not be increasing much more in the next years.

Designation of “high nature value areas” for biodiversity conservation monitoring in agriculture and forest areas is currently under consideration.

The Natura 2000 sites have been selected and designated since 2004. Between the years 2004 and 2008 Poland was successively sending relevant proposals to the European Commission. Eventually, Poland submitted in total 959 Natura 2000 sites, covering about 19% of Polish territory (Fig. 2).

In total, all forms of environmental protection together covers over 32% (10101500 ha) of the whole area of the country (Polish Ministry of the Environment 2009).

Within national parks, the majority (62%) of land is covered by forests. A significant fraction of national parks is agriculture land and wasteland (14% each). About $\frac{3}{4}$ areas of national parks in Poland are state-owned, partly due to nationalization of land in the 1940s and 1950s. However, almost $\frac{1}{4}$ th of the total area under national park status still lie under individual or community private ownership (Tab. 1) and quite a big share in this non-state ownership in national parks is not accompanied by participatory management of those areas (Królikowska 2007).

Table 1. National parks in Poland by ownership forms and land use, in 2008, data based on GUS 2008

	Ownership:		
	Total in %	The State	Private and other
Forest land	62%	96,2%	3,8%
Agricultural land	14%	53,6%	46,4%
Woody and bushy land	1%	74,2%	25,8%
Water	7%	99,3%	0,7%
Wasteland	14%	64,9%	35,1%
Other	2%	73,4%	26,6%
Average		76,9%	23,1%

The Natura 2000 is the newest network of protected areas in Poland. It differs considerably from the previous - traditional Polish system – and it is a complete novelty in managing nature (Makomaska-Juchiewicz and Tworek 2003, Makomaska-Juchiewicz 2007, Perzanowska and Grzegorzczak 2009). The protection of Natura 2000 network sites is based on the idea of sustainable development, which should reconcile the necessity of preserving the continuing existence of species and habitats with the economic and cultural needs of man and specific local conditions. According to the guidelines of the Natura 2000 program and its national implementation, the Polish authorities must reorganize the system and the method of managing natural resources in a relatively short time. The site designation process was completed in only 5 years. This concerns (1) a change in the traditional approach to managing natural resources (based solely on conservation) to a more modern approach (taking into account social aspects), which has been started with the consultation process in Malopolska region in 2008, (2) the creation of a system enabling the application of these social aspects in practice, that still needs to be developed and (3) the organization of a nature monitoring system of the newly created conservation areas. Interest in the fate of Natura 2000 in Poland is shared by various stakeholders both professionally connected with nature conservation in its broad sense, and institutions and individuals directly affected by the introduction of the program. Natura 2000 is also often seen as a much-required improvement of insufficient system of “traditional” protected areas (Jermaczek and Pawlaczyk 2004). In comparison to other protected areas, Natura 2000 has raised a considerable number of conflicts and social problems so far. The land use structure in the Natura 2000 areas features a high proportion (varying between regions and countries) of private land, hence it is managed by their owners – chiefly farmers (Makomaska-Juchiewicz and Tworek 2003, Makomaska-Juchiewicz 2007), but also by a large number of property owners. EU obligations concerning the implementation of Natura 2000 initiated important changes in national environmental law (enforcement of EIA), administrative structures (introducing General Directorates, reorganizing monitoring) and practices of policy implementation in conservation. Currently the site designation has been mostly completed (some space has been left for further improvement of the network)

and most work focuses on monitoring and developing management plans. The latter is being prepared along with a state-wide consultation scheme, consisting of series of meetings with relevant stakeholders from every local community (previously most consultations were done via written documents). Also it seems to encourage rethinking traditional forms of conservation and exploring innovative examples and good practices for conservation. Important and necessary changes have not been applied when it comes to concrete policy instruments. Although agro-environmental programmes for Natura 2000 sites are being implemented, there is still a need of creating economic schemes that would either encourage people to support nature protection (incentives, subsidies) or compensate lost profits (financial compensations) on private lands. So far no such instruments have been implemented yet. There is a potential for developing solutions for private lands within management plans, however it is not obligatory and will depend on decision taken by experts preparing particular plans.

2.3. Environmental protection and nature conservation funds

In the last few years, public expenditures on environmental protection in Poland have been fluctuating over the same level, between 0.6 and 1.0% of GDP (Fig. 3). Among the most important institutions granting environmental protection in Poland the Ministry of Environment, National Fund for Environmental Protection and Water Management and EcoFund should be enumerated.

The National Fund for Environmental Protection and Water Management (National Fund) which, together with the Voivodeship Funds for Environmental Protection, forms the backbone of the system for financing environmental protection projects, was founded in 1989. For many years this institution has been financially supporting a big range of environmental initiatives.

The National Fund's resources are designated mainly for co-funding large national and pan-regional capital projects for controlling water, air and land pollution. Grants are also allocated for tasks related to geology and mining, environmental monitoring, preventing threats to the environment, protecting nature and forestry, promoting environmental awareness, protecting children against health threats, scientific and research work and for obtaining expert opinions. Biodiversity and landscape protection is one of the main areas of interest in the National Fund. In 2000 and 2001 financial resources allocated in biodiversity and landscape protection were the highest, in comparison with the following years (Fig. 4). Generally, the National Fund provides on average about 50% of the value of the project (from 30 to more than 60%).

EcoFund is on the leading edge among Polish environmental protection funds and is a leader, along with the National Fund for Environmental Protection and Water Management, with regards to the financial aid provided in the form of non-returnable grants.

The history of EcoFund dates back to 1991, when the so-called Paris Club (consisted of the countries that were creditors of Poland, among others) decided to reduce the Polish debt by 50%, provided the remaining part is paid off by 2010. The government of Poland proposed that a further 10% of the debt could be allocated for supporting the most urgent environmental protection projects. This was the first initiative in the world for allocating a part of a government-secured debt for environmental protection purposes (usually referred to as "eco-conversion of debts" or "debt-for-environment swap"). The Paris Club accepted the Polish proposal, making it generally possible to adopt the mechanism of allocating a part of the debts (up to 10%) for the purposes specified in bilateral agreements signed by Poland with individual creditor countries.

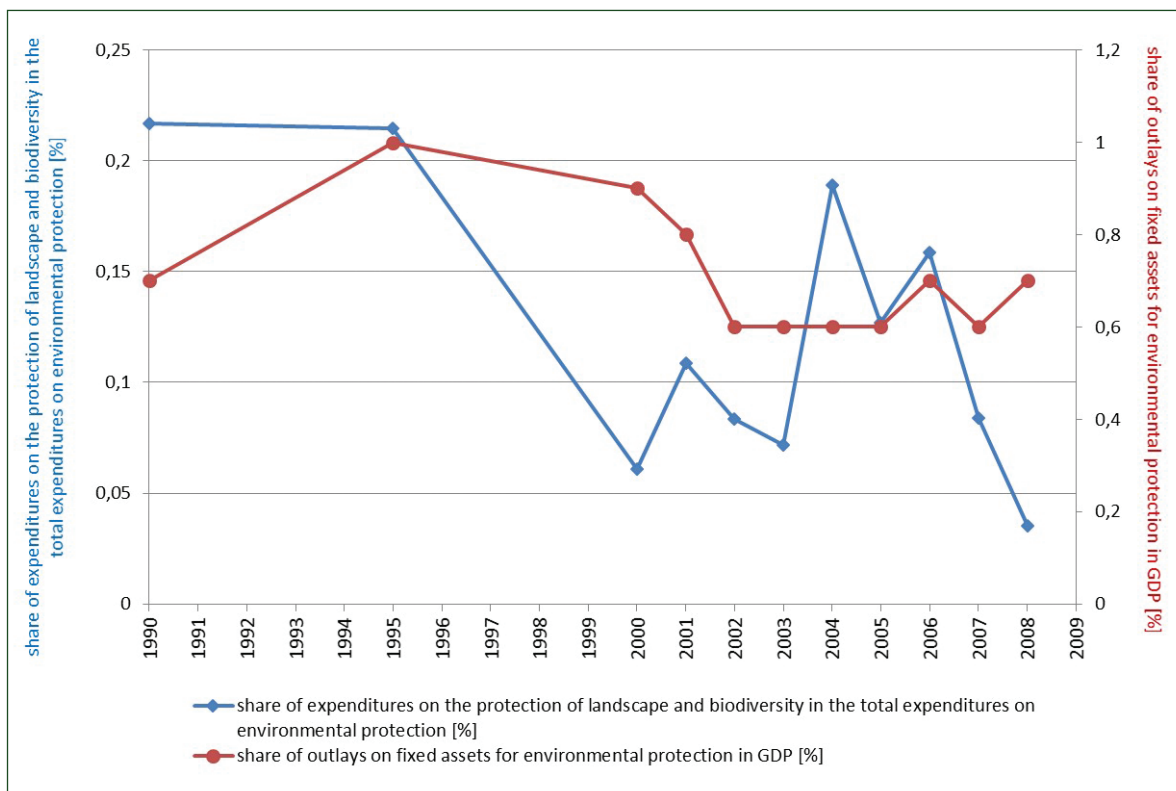


Figure 3. Public expenditures on environmental protection in Poland in GDP percentage (red line) and share of expenditures on the protection of landscape and biodiversity in the total expenditures on environmental protection in percent (blue line). Data based on GUS 2009.

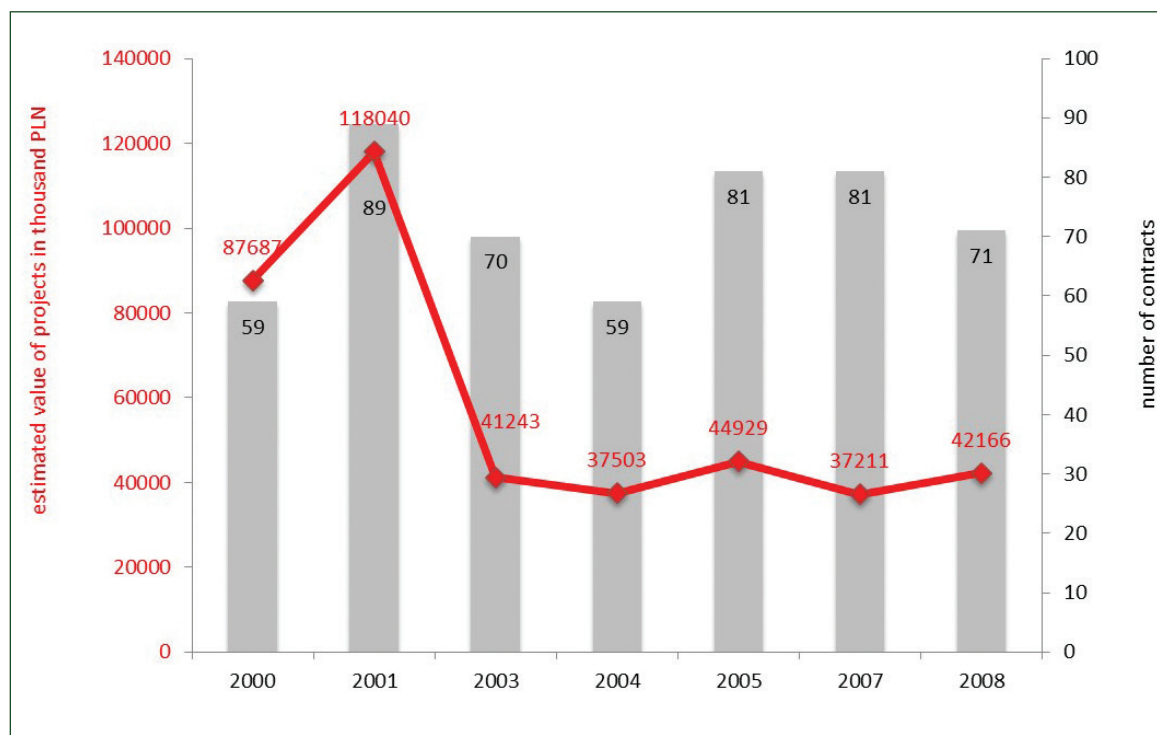


Figure 4. Funding for biodiversity and landscape protection projects from National Fund for Environmental Protection and Water Management in Poland between 2000 and 2008 (red line) and number of contracts signed each year with the National Fund (grey columns). Data based on National Fund's annual reports.

Poland received a total amount of about 570 million US dollars for environmental protection projects as a result of signing relevant agreements on the debt-for-environment swap with the six countries – USA (372 million USD, 10% of the debt), France (66 million USD,

1% of the debt), Switzerland (63 million USD, 10% of the debt), Sweden (13 million USD, 4% of the debt), Italy (32 million USD, 10% of the debt), Norway (27 million USD, 10% of the debt). That money, paid in annual tranches from 1992 to 2010, is administered by the EcoFund Foundation. The debt-for-environment swap program will be closed in 2010. Apart from the receipts from the debt-for-environment-swap scheme, EcoFund also receives money from banking operations and from donations. The EcoFund financially supports projects in five areas recognized as priorities - biodiversity conservation is one of these priorities.

According to the closing report of EcoFund 2010, about 9.9 million € were spent in Poland for environmental protection (in 2008 fixed prices, the average value of ECU/€ from the successive years 1996-2009 – 1 EUR=3,9463 PLN). However, the actual financial effect was higher – due to cooperation with other environmental funds and engaging beneficiaries' own resources a leveraging effect was achieved. Engagement of the debt-for-environment swap financing in 1993-2008 resulted in environmental investments amounting to 3.3 billion € (Report 2010). Without creating the debt-for-environment swap mechanism collecting such an amount of financing from other sources would have been very difficult or impossible, mostly due to shortages of financial resources in the transformation period.

Since 2004, another source of money for environment and nature protection has been the Rural Development Program. RDP 2004-2006 was the largest program supporting agriculture and rural areas development in Poland based on EU funds after Polish accession to the EU. 3592.4 million euro was planned for the program and 3590.6 million spent (99.95% efficiency). Almost 2.9 billion (about 80%) came from the EU budget. The program was a counterpart for RDP 2000-2006 in EU 15 (co-called 'old' members). According to ex post evaluation, strategic goals of RDP 2004-2007 (improving the competitiveness of the agro-food economy and sustainable development of rural areas) were accomplished.

The second phase of the program, RDP for 2007-2013, provides resources of 17 billion euro (in which 13 billion come from the EU budget and 4 billion from the Polish budget). The two phases differ – among other things - in the set of packages in agro-environmental schemes (Tab. 2). During the RDP 2004-2007 it was possible to ask for increased payments (+20%) for the "Packages in the Natura 2000 site", while in RDP 2007-2013 there is a special package for "Protection of endangered species and habitats on Natura 2000 sites".

Table 2. Packages available under agri-environmental schemes in RDP first and second phase/edition in Poland

Agri-environmental schemes in RDP 2004-2006	Agri-environmental schemes in RDP 2007-2013
Sustainable agriculture	Sustainable agriculture
Maintenance of extensive meadows	Ecological agriculture
Maintenance of extensive pastures	Extensive permanent grassland
Creating buffer zones	Protection of endangered species and habitats outside Natura 2000 sites
Protection of local breeds of domestic animals	Protection of endangered species and habitats on Natura 2000 sites
Soil and water protection	Conservation of endangered plant genetic resources in agriculture
Ecological agriculture	Conservation of endangered animal genetic resources in agriculture
	Soil and water protection
	Buffer zones

Among 8 actions within RDP 2004-2006, one was dedicated to agri-environmental projects and (among others) biodiversity protection (Action 4: “Support for agri-environment projects and for animal welfare improvement”). By implementing agri-environmental program, RDP 2004-2006 enabled the improvement of the natural environment. Financial support under agri-environmental program covered about 1.4 million hectares (9% of the general surface of agrarian lands in Poland), 78 thousand farmers participated and more than 83 thousand projects were realized. The number of granted applications rose with time (Fig. 5). In general, about 3.5 billion euro has been spent in RDP 2004-2006.

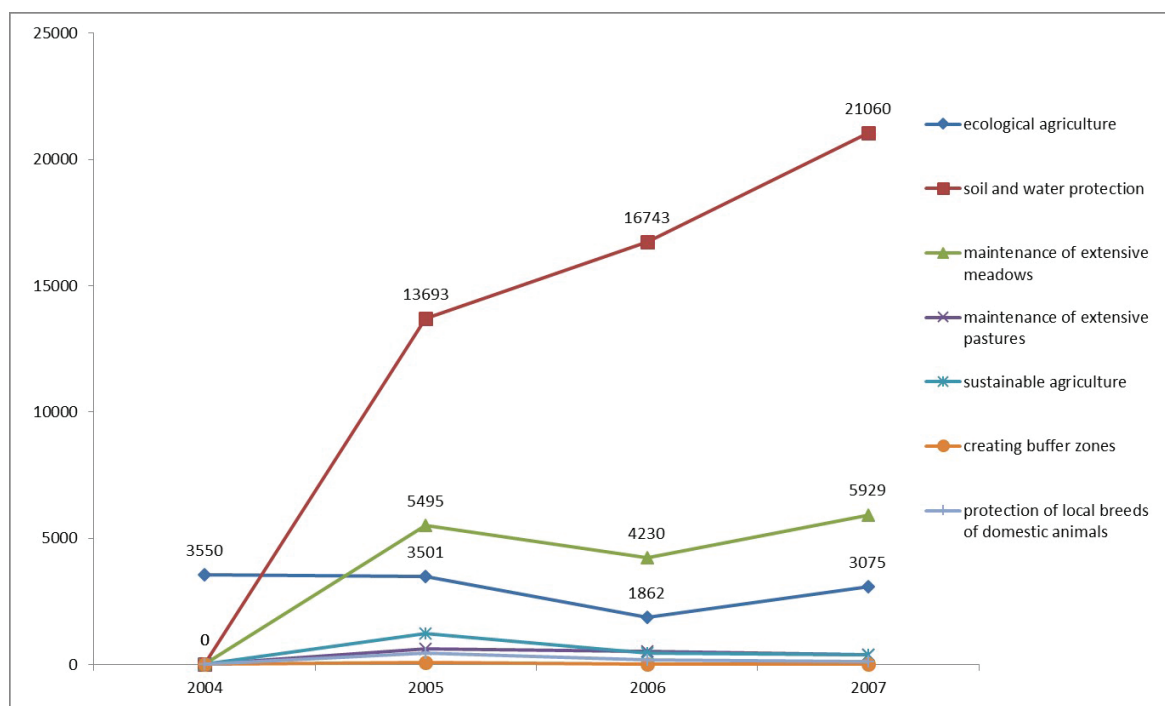


Figure 5. Number of granted applications by the declared package between 2004 and 2007 in Poland. Data from ARMA.

The actual impact of agri-environmental schemes on biodiversity conservation in Poland is questioned by the respondents:

“Theoretically these programs are operating, but practically they are not very effective, not to mention that their effectiveness has never been formally evaluated, and it is probably impossible to get such information on how these programs work. As far as the acreage, the programs cover a very limited area, so practically their effect cannot have any significant impact. So, although we have potential tools, realistically speaking financial resources stream available which definitely might have been allocated for needed activities, but practically it is not. On the contrary it is used for nonsensical tasks. Such a system does not face the most crucial problems of agri-landscape - realistically covering 60% of the total country surface – namely intensification. And this has happening in the time when a need for the food has decreased.”

There has been also an increasing use of European funding for nature conservation. Under the first edition of the LIFE Program 23 projects were financed, among these four focused on environmental innovation, 15 on nature conservation, one on capacity building and three on Information and Communication. Total funds allocated to the projects amounted to 50.4 million euro, of which 28.7 million euro was contributed by the European Union. In the subsequent edition of the LIFE program (so called – LIFE+) 17 LIFE+ projects in Poland were

approved: three under the LIFE+ Environment Policy and Governance component, 11 under the LIFE+ Nature and Biodiversity component and three under the LIFE+ Information and Communication component. (<http://ec.europa.eu/environment/life/countries/poland.html>)

2.4. Governance style and trends over the period explored

At the end of communistic period, Poland, along with USSR and GDR had been one of the most polluted countries in Central and Eastern Europe. Former environmental law was not obeyed, economy and social interests were considered superior to environmental concerns. Capital expenditure in environmental protection sector were between 0.3-0.5% of domestic product, while estimated material losses of society, caused by pollutions, were between 5-10% of domestic product. Starting from 1989, an important series of changes in law and practices have been implemented, especially concerning rigidity of regulations.

1991: Nature Protection Inspection Act (Ustawa o Inspekcji Ochrony Środowiska Dz. U. z 2007 r. Nr 44, poz. 287).

- 1991: First State Ecological Policy (Polityka Ekologiczna Państwa) – first acknowledge of sustainable development rules.
- 1991: Establishing system for ecological funding on national and regional levels.
- 1992: Establishing of Polish EcoFund (EkoFundusz) – financial institution utilizing debt reductions obtained by Poland.
- In the late '90s there was rapid drop in environmental improvements achieved annually, as the simplest negligence and failures had been corrected. In the late '90s regional inspectorates of environment were united with regional administration, which considerably reduced its power and potential influence.
- 1999: Ministry of Environmental Protection, Natural Resources and Forestry were transformed into Ministry of Environment. From October 1999 till July 2010 there have been 7 changes in the heads of the Ministry and 8 different Ministers.
- 2000: Access to Information about Environment and its Protection and Environmental Impact Assessments Act (Ustawa o dostępie do informacji o środowisku i jego ochronie oraz o ocenach oddziaływania na środowisko Dz.U.2000.109.1157)
- 2001: Environment Protection Act (Ustawa o Ochronie Środowiska Dz.U.2001.62.627)
- 2004: Nature Conservation Act (Ustawa o Ochronie Przyrody (Dz.U.2004.92.880) that replaced the act from 1991. The new act introduced two forms of authorities in nature conservation: administration and “consultative organs” – councils of nature conservation. Quickly after introducing the new law, it has proved to be inconsistent with EU regulations compulsory for Poland after accession in May 2004, especially causing problems for Natura 2000 implementation, starting a few-years long confusion about institutional responsibilities for its implementation (Kotońska 2007).
- 2008: Law on availability of information about environment and its protection, public participation in environmental protection and environmental impact assessment (Dz.U. 2008.199.1227) together with the new law on environmental protection (Dz.U. 2008.25.150). The new law adapted national regulations to EU law and obligations within its programs. Also, one of the main goals of the law was the improvement of time-efficiency of environmental impact assessments.

In recent years a number of policy documents have been issued; they clearly indicate the need for conservation of Poland's natural heritage. The most important include the *National Environmental Policy* of 1991 and its continuation for subsequent planning periods (*II Na-*

tional Environmental Policy of 2001, *National Environmental Policy for 2003-2006 including Perspectives for Years 2007-2010*, the *National Environmental Policy for 2009-2012 including Perspectives till Year 2016* draft adopted by the Council of Ministers in December 2008). Other strategic documents were also adopted (Polish Ministry of the Environment 2009).

Poland made commitments under a number of conventions and international agreements regulating the principles of the protection of selected elements of the natural environment (Polish Ministry of Environment 2003, Tworek 2007). The most important ones are:

- The Convention on Biological Diversity;
- The Convention Concerning the Protection of the World Cultural and Natural Heritage (the Paris Convention), ratified in 1976 (Official Journal of the Laws No 32, Item 190);
- The Convention on Wetlands of International Importance, especially as Waterfowl Habitat (the Ramsar Convention), ratified in 1978 (Official Journal of the Laws No 7, Item 124, as amended);
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (the Washington Convention), ratified in 1989 (Official Journal of the Laws of 1991, No 27, Item 112, as amended);
- The Convention on the Conservation of European Wildlife and Natural Habitats (the Berne Convention), ratified in 1995 (Official Journal of the Laws of 1996, No 58, Item 263, as amended.);
- The Agreement on the Conservation of Small Cetaceans in the Baltic and North Seas; ratified in 1995 (Official Journal of the Laws of 1999, No 96, Item 1108);
- The Agreement on the Conservation of Bats in Europe, ratified in 1996 (Official Journal of the Laws of 1999, No 96, Item 1112);
- The Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention), ratified in 1996 r.(Official Journal of the Laws of 2003, No 2, Item 17);
- The Convention on the Protection of the Marine Environment of the Baltic Sea (the Helsinki Convention), ratified in 1999 (Official Journal of the Laws of 2000, No 28, Item 346);
- The Cartagena Protocol on Biosafety to the Convention on Biological Diversity, ratified in 2003 (Official Journal of the Laws of 2004, No 216, Item 2201);
- The European Landscape Convention, ratified in 2004 (Official Journal of the Laws of 2006, No 14, Item 98);
- The Framework Convention on the Protection and Sustainable Development of the Carpathians, ratified in 2006 (Official Journal of the Laws of 2007, No 96, Item 634).

2.5. Civic involvement

Civic involvement in Polish nature conservation manifests mostly in activity of non-governmental organizations. NGO in environmental conservation has a long history in Poland. It consists of several state-wide organizations and large number of regional and local associations and initiatives. Cooperation with public administration in conservation occurs on the ground of biodiversity monitoring and species protection (most important: birds, bats, wolves, and lynx). In the early '90s and in the previous system, public institutions used to cooperate mostly with larger, country-wide NGOs. During the last few years it has changed, mostly due to debates and conflicts over Natura 2000, where local NGOs also played an important role, both cooperating and opposing the governmental actions (Gliński 1996, Cent at al. 2007).

There have been examples of informal management of protected areas by NGOs. Several areas have been bought by one of the Polish environmental NGOs (OTOP – section of Birdlife International) and turned into protected bird areas (nature reserves). However, the most significant activities of NGOs concerns implementation of Natura 2000. Non-governmental organizations have been actively involved from the outset in the whole process of implementing the Natura 2000 program in Poland, led by scientific institutions instructed by the Ministry of the Environment. Representatives of the NGOs recognized the need to complete the list of species and habitats named in the annexes of the Habitats Directive and the Birds Directive and took part in the preparation of a proposal for its extension and a proposal of sites to be included in the Polish part of the network, to include the additional species and habitats (Baranowski 2003). This set of additional areas prepared by NGOs, known as the “Shadow list”, was sent to the EU Commission (Kepel 2006). The Commission supported this action, in the anticipation that the Polish government would extend its proposal to include all those sites that were previously deleted from this list (Szymczuk 2006). Despite this, the Shadow List was not directly implemented, but the final list of areas proposed by the state was based on this proposition.

The involvement of non-governmental organizations in the Natura 2000 program is also apparent in their attempts to inform the public, for example, by addressing the issue on their websites and in their own publications. Another important aspect is the almost immediate intervention of non-governmental organizations in situations where plans in some way threaten species or habitats included in the program. The intervention takes on different forms depending on the importance of the investment, from articles in the press to petitions to the European Commission (Babiasz et al., 2006; Bohdan, 2006; Bzoma, 2006; Chojnowski, 2006). Making use of the potential of non-governmental organizations in carrying out monitoring of these sites is very important, particularly for the bird areas (Cent et al 2007).

Involvement of citizens other than NGOs, its supporters and volunteers, in conservation is marginal. Citizens can be involved in protests and conflicts over extension or designation of protected sites, however there is no tradition of participatory management in Poland (Grodzinska-Jurczak and Cent 2011). Quality of public consultation of different decisions and processes in environmental protection in Poland is criticized (WWF 2007). Currently there are discussions on the need of participatory processes in National Park management, yet not followed by action (Terlecka and Górecki 1998, Partyka and Żółciak 2005, Królikowska 2007).

The first systematic public consultation scheme concerning designation of protected sites started in the Malopolska region in 2008. Primarily it was aimed at gaining public opinion on the sites selected by the experts at their municipalities, and then was broadened to the inclusion of local communities into development of conservation plans for each site separately (Cent et al. 2010). Very good experiences achieved practically from the very beginning of the consultation scheme were paralleled by gaining detailed information on the local conflicts over Natura 2000. This resulted in a growing importance of consultation activities undertaken by conservation institutions. Since then public consultation organized as open meetings and the establishment of local cooperation groups of various stakeholders (experts, local authorities, NGOs, citizens) became obligatory during the development of management plans for Natura 2000 sites. From 2009 the Polish Ministry of Environment has conducted a broad, systematic process of consultations and negotiations with local societies, stakeholders and authorities concerning expanding borders of Białowieża National Forest.

2.6. Future

Key policy trends, according to National Ecological Policy (Polish Ministry of Environment 2008):

- Improving sustainable development
- Adapting to climate change
- **Biodiversity conservation**

Implementation of the National Ecological Policy meets a number of challenges. Weak communication between governmental organizations, NGOs and the local communities causes serious problems in the implementation of these tasks, which has been especially troublesome during the early stages of Natura 2000 designation. Socio-economic priorities of residents often conflict with the nature conservation task, or at least they are commonly perceived to do so. The regions mainly responsible for the existence of enclosures with higher diversity are also the poorest, due to less effective traditional farming. In such situations nature conservation confronts economical reasoning.

Implementation of Natura 2000 network is also a vexed question, due to unclear criteria of what exactly “protection” means in case of such form of nature protection. Until now, dialogues were undertaken only for a few designated sites in the very last stage of designation process. Natura 2000 itself gained bad publicity in Poland due to infamous and vastly critical press over Rospuda Valley conflict. During the next few years (1 to 6 depending on a given site), Poland should develop conservation and management plans/strategies for Natura 2000 areas (Polish Ministry of Environment 2008).

There are rough estimations that in order to meet all the EU obligations concerning environmental protection, budget for this sector should be twice to three times higher than the current one, which cannot be expected. Expenditures on research projects and eco-innovations, as well as on environmental education and support for public participation are needed. It is **predicted** that expenditures on environmental protection for years 2013-2016 would be 45% in private, 38% in public (national) and in 17% from abroad (EU, Norwegian Financial Mechanism among others) (Polish Ministry of the Environment 2008). Predicted private funds consist mainly of investors’ input to eco-innovation, implementing (either voluntary or obligatory) environmental standards, e.g. considering recycling. There are opinions however that the share of costs covered by private actors is overestimated. Experiences from previous periods (2003-2006) show that expenditure on environmental protection is decreasing. Public funds for the conservation of biodiversity and landscape decreased by 45% between 2003 and 2006 (Council of Ministries 2008).

3. Current regulatory regimes

3.1. Site selection and management of protected areas

3.1.1. Actors and their roles in the selection of sites for protected area and management at multiple levels

Amongst state actors taking part in site selection and management of protected areas in Poland, three main levels can be pinpointed: national, regional and local. At the national level there are two main institutions responsible for protected areas – the Ministry of Environment and the General Directorate for Environmental Protection (GDEP).

The GDEP is responsible for nature conservation – it manages the conservation of protected species, afforestation, green areas and protected sites. One of the main aims of the GDEP is to manage the Natura 2000 network in Poland. Some of the other nature conservation forms are also under GDEP supervision. The GDEP is a unit responsible for the environmental impact assessment procedure - it supervises the EIA procedures and their consistency. The Ministry is responsible for environmental protection and the general environmental policy, and also reserves the right to create or liquidate national parks. The Ministry has its official Advisory Bodies consisting of experts and scientists. Among 12 Advisory Bodies there are: The State Council for Nature Conservation, The State Council for Environmental Protection, The Forestry Council, The Commission for Mineral Resources, The Commission on Genetically Modified Organisms and others.

At a regional level the major role in managing protected sites is given to the regional units of GDEP – in each of 16 voivodeships there is a RDEP. RDEPs are responsible, in practice, for the designation of Natura 2000 sites as well as some of the other protected area forms, in addition to preparing managements plans for Natura 2000 sites. Regional authorities (voivodeships councils) participate in the nature conservation system by creating landscape parks and protected landscape areas. Some scientific units can be seen as a part of regional level, for example the Institute for Nature Conservation (Polish Academy of Science) is a unit responsible for scientific basis of designation and management of Natura 2000 sites. The Institute cooperates closely with REDPs.

At the local level, authorities still have responsibilities for protected sites, albeit with a smaller amount of influence. Local authorities (municipal councils) are asked for approval or disapproval during the process of designation of protected areas. Within the borough council's responsibilities is also the creation of small, local, less restrictive nature conservation forms. Communication between national authorities and the local ones is rather poor. A consultation process is required by the Nature Protection Act, but its form is reduced to a formal request for opinion, which can be then easily rejected.

Among non-state actors, it is mostly NGOs that have the opportunity to influence the process of designating and managing protected areas. There are several NGOs in Poland that work intensively on biodiversity conservation. The most active group of 4 NGOs, who created the Shadow List of Natura 2000 sites, were: WWF Poland, OTOP (member of BirdLife International), and Polish Association for Nature Conservation 'Salamandra' and Klub Przyrodników (Naturalists' Club). NGOs work on national as well as on a very local level. Most of them however are concentrated on local actions and only participate in the process of selecting smaller protected sites which are of less importance.

3.1.2. Formal institutions relevant for site selection and management of different types of protected areas

The main institution responsible for selecting and managing protected sites since November 2008, is the General Directorate for Environmental Protection (GDEP) and its regional units (RDEP). However, national parks are directly supervised by the Ministry of Environment. The less important forms (smaller, less restrictive), are supervised by the lowest administrative levels (Tab. 3). Management of protected sites created on the basis of international agreements (Bern Convention and Ramsar Convention among others) is also the responsibility of GDEP.

Table 3. The institutions responsible for creation and management of each form of nature conservation in Poland.

nature conservation form	institution responsible for creation	institution responsible for management
National Park	regulation of the Council of Ministers	NP manager under the direct supervision of the Ministry of Environment
natural reserve	Regional Directorate for Environmental Protection (RDEP)	RDEP
landscape park	relevant voivodeships councils	park manager (+voivodeships councils acceptance)
protected landscape area	relevant voivodeships councils	RDEP
Natura 2000 site	formally Ministry of Environment, the project is prepared by General Directorate for Environmental Protection (GDEP)	RDEP coordination (cooperation with GDEP), exceptionally – The State Forests, NP authorities
natural monument (e.g. retention trees) and other relatively small forms of territorial protection	relevant municipal council	RDEP, Ministry or municipality

3.1.3. Funds and resources for institutions relevant for management of different types of protected areas

Founded in 1989, the National Fund for Environmental Protection and Water Management together with the Voivodeship Funds for Environmental Protection is one of the most important parts of the system for financing environmental protection projects in Poland.

The National Fund operates in accordance with the Environmental Protection Law; it finances tasks relating to environmental protection and water management from its own funds and from the EU funds. It is the largest institution in Poland that cooperates with international financial partners and handles foreign funds designated for environmental protection.

The National Fund revenues mainly come from fees paid for use of the environment for economic activity and penalties paid for violation of the environmental law. Money from NF are mainly designated for co-funding large national and pan-regional capital projects for controlling water, air and land pollution. Biodiversity and landscape protection is one of priority programs financed from Polish funds. The National Fund coordinates also funds such as LIFE+ projects or EEA and Norway Grants.

An extremely important source of funds for environmental protection and nature conservation is the Operational Programme of Infrastructure and Environment (OPI&E). The management structure of OPI&E activities is illustrated in Table 4.

Table 4. The management structure of the Operational Programme Infrastructure and Environment in Poland, with chosen priority axes.

Managing authority	Intermediate body	Priority axis	Implementing institution
Ministry of Regional Development	Ministry of the Environment Department of the «Infrastructure and Environment Operational Programme»	I and II	National Fund for Environmental Protection and Water Management and the Voivodeship Funds for Environmental Protection
		III and IV	National Fund for Environmental Protection and Water Management
		V	Coordination Centre for Environmental Projects
		VI – VIII	The Centre for EU Transport Projects
		IX	National Fund for Environmental Protection and Water Management and Institute for Fuels and Renewable Energy
		X	Institute for Fuels and Renewable Energy and The Oil and Gas Institute

The fifth priority axis is the most important for nature and biodiversity conservation, as it is ‘*Nature conservation and promotion of ecological awareness*’. About 105.6 billion euro has been provided for action within this axis. During the next few years preparation of 406 management plans for Natura 2000 sites will be funded through this program.

The Coordination Center for Environmental Projects is a unit that was established on the 1st of November, 2006 on the basis of Decision 73 (from 31st Oct. 2006) of Directorate General of the State Forests [DGSF]. The Center acts as an institution implementing priority axis V – ‘Nature protection and promotion of ecological awareness’ of the operational programme “Infrastructure and Environment”. Furthermore, its tasks include implementation of activities resulting from the drafted regulation on greenhouse gas emissions reduction as well as supporting innovativeness in wood industry and forestry contractors sector.

LIFE and LIFE + programs (see above in chapter 2.3.) are often regarded as an important source of funding to protect areas in Poland, however they cannot be perceived as a systematic solution for sponsoring conservation activities and management over the country.

“To develop appropriate management plans for each individual Natura 2000 site, a certain amount of money is required, not just 60 000 PLN (15 000 EURO) like in the case of Białowieża National Park extension (...). We think that everything will be solved by LIFE+ funding. But LIFE+ is not a comprehensive Program. It can be awarded or not depending on the quality of application. Those who apply vary, so do the projects. What’s more even if awarded they do not cover the whole country as some regions are more other less active in gathering additional funding, which the LIFE+ is”.

“Another example: Warmia-Mazury Voivodship has not included any tasks towards biodiversity protection planned into their regional plan. So practically they have not allocated any funding for that purpose but they did apply for LIFE+ program. As far as I know Pomorze Voivodship did the same. It is simply unbelievable! Especially being so pressurized to complete these tasks, having in mind resources to be given for the highway infrastructure...”

Another institution that has a big influence on financing environmental protection in Poland is Bank Ochrony Środowiska (BOŚ). It's a commercial bank established in 1991 with a main aim of financing environmental protection projects. For years Bank Ochrony Środowiska S.A. has been actively engaged in financing pro-ecological projects. BOŚ offers preferential, low-interest loans for projects related to environmental protection and business development at the same time. In recent years – primarily due to completion of tasks credited by BOŚ S.A. – Poland has contributed to the reduction of dust emissions, increased the capacity of wastewater treatment plants and the length of sewage systems, and the Bank has also supported projects related to recycling and to generation of power from renewable sources.

3.1.3.1 The case of Białowiecki National Park enlargement and Białowieża Development Program

Created in 1932, Białowiecki National Park (BNP) is one of the oldest national parks in Europe. BNP is situated on the Polish-Belarus border and covers more than 10 thousands hectares of a well-preserved primeval forest of the Polish part of the Białowieża Forest. In 1992, along with the Belarusian part, it was registered as UNESCO World Heritage Site, forming one of the few transboundary World Heritage Sites. Białowiecki NP is famous not only for its primeval forest and woodland but also for its wisent population. Wisent (*Bison bonasus bonasus*) almost became extinct in this part of Europe but the Białowieża population eventually recovered mainly due to individual breeding farms. Then, based on the Białowieża population, wisent was reintroduced to a few other Eastern European countries.

Over the previous two decades or so, there has been a continuous struggle between forestry and nature conservation organizations at Białowieża Forest areas. Wood industry dominates some parts of the forest. As a response to a wood overexploitation in this area, in the mid-90s a number of Polish and international ECO-NGOs started to intensively promote a need of Białowiecki National Park enlargement. In 1998 it eventually resulted in development and implementation of a project called 'Contract for Białowieża Forest'. The project proposed enlargement of the NP until the year 2000 based on financial support from the governmental. What was unique about the national policy was that half of the donation (4 million EURO) was given directly to the local communities to be invested according to their own local needs. Although such a scenario seemed to be attractive to the local communities, the majority of inhabitants definitely protested against the project. Disputes and complaints took so much time that state budget and nature conservation legal requirements changed. Few years later in 2001, the project of the Białowieża National Park enlargement was eventually suspended.

Although there was no local support for the project, the Polish Ministry of the Environment decided to restart the project. In 2009 a new governmental - Białowieża Development Program (BDP) was initiated. Contrary to the previous policy, it was focused more on attracting the local communities to the project and trying to integrate them into realization of the following tasks. The program itself started from a series of meetings and public consultations addressed to the local authorities and inhabitants. The discussions concerned proposed borders of the enlarged Białowieża National Park as well as potential investments and projects the local governments consider to be needed in their communities. Although two variants of the park enlargement were proposed by the Ministry, none of them were fully supported by the local authorities. Eventually, the third presented variant was accepted.

The main aims of the BDP are to enlarge the PN by an additional 20-25 thousands hectares and to financially support the communities of the region. The budget of the whole duration

of the program (2010-14) is quite large, amounting to 25 million Euros (compared to the average budget of the community in this region which ranges between 1-2 million EURO). Attitudes of the local governments to the Ministry scenario seem to have changed over time. So far, about 80 development projects for 9 communities have been developed and eventually accepted. They vary in their nature, comprising of tourism development (e.g. promotion of hiking, biking and canoeing paths, supporting municipal tourist information centres), sewage system and municipal waste management improvement, modernization of buildings, support for regional architecture and others.

Parallel to BDP, the Ministry launched the project called *Sustainable development of the Bialowieza Forest region* that is also dedicated to the local communities and municipalities. The project offers concessional loans and grants.

3.1.3.2 Ecological subsidies – an example of civic-municipality initiative in Poland

The idea of ecological subsidies for communities living in boroughs included in various forms of protected areas (mainly N2000) was brought up by many local authorities for the last years or so. Subsidies should be paid to the municipalities from the central national budget. The need for and principles of the subsidies is still being discussed. A variety of compensation methods, as well as legal and practical aspects of such a proposal was formulated by representatives of the Union of Rural Communes of the Republic. It was intensively consulted and discussed by various groups of actors such local politicians, scientists, respective ministries and representatives of General Directorate of Environmental Protection (GDEP) during two conferences (April 2010 at IRWiR PAN http://www.irwirpan.waw.pl/index.php?option=com_content&view=article&id=337%3Awnioski-z-dyskusji&catid=49&Itemid=52&lang=pl; June 2011 at GDEP).

As a system of ecological subsidies, the Union proposes considering the setting up a type of ecological fund supporting development and compensation of transaction costs for the communities living in the protected areas. A final version of the proposal is being refined now, and although its' authors seem to be open to various solutions, no further details are available to the public at the moment.

Whilst preliminary conclusion from the last conference and stakeholders forum held in 2010 (April 2010, IRWiR PAN) was not favourable to the proposal of the subvention system, it received a lot of attention among various actors. The most active and interested parties in work on this initiative are those local governments whose boroughs are included into Natura 2000 Network. There are more than 100 boroughs advocating for the project, all unified in The Union of Rural Communes of the Republic of Poland. Besides working on the text of the civic act itself, leaders of this project have been popularizing it and engaging a number of volunteers, local, regional and central politicians, and scientists into the project. Lately, the proposal has been discussed with GDEP and members of the Polish Parliament. Development of the proposal, submitted to Parliament as a civic initiative, is still in progress (oral information). The Union representatives claim that GDEP is very much interested and would definitely back their proposal, although unofficial information gathered from the lower officer of GDEP contradicted such a statement. It would be however be the case that any kind of agreement between the Union and GDEP was made at the high level of coordination whereas the information was taken from a lower officer of the institution who was not necessarily informed about the project.

As stated above, a final version of the civic act is being developed. Most criticism from those not supporting the subsidies system are that: (1) the idea of the mechanism is too simplistic,

(2) does not consider how the conservation system would potentially benefit from the established fund and (3) the relationship between decreasing value of land and private or municipal ownership rights was not well proved (IRWiR PAN 2011). Those who support a proposal of any subventions or other types of financial compensations underline hidden costs of the N2000 networks bore by the municipalities. Recent analysis shows that Poland in comparison to other EU Member States has the lowest cost rate of sustaining N2000 sites per hectare. EU estimated mean cost equals approximately 6 billion euro annually, with 63 euro per hectare (e.g. Cyprus spent much more 900 euro). Poland spent no more than 115 billion euro each year, and 14 euro per hectare while the real costs of the network are significantly higher, approximately 400 billion euro annually. Additionally Poland implements N2000 in a more restrictive and complicated way than majority of other EU Member States. The system the Polish government selected is based on extended bureaucracy and costs, including for example obligatory development of detailed management plans for each Natura 2000 site, which in fact seems to be irrational (Bortłumiak and Zagórski 2011).

Although the majority of the local governments are not satisfied with the way the nature conservation system operates in Poland, there are also examples of communities already benefiting from the protected areas and from N2000 sites. For example, in Biebrza National Park it has become more and more popular for the farmers to lease land from the Park and to apply for agri-environmental schemes (approx. 50 agreements established by 2011). In such cases leased land is still under protection, the scheme is applied in cases where some forms of farming activities, such as mowing, are allowed and considered as desirable. In the rural eastern part of Poland (so called „Green Lungs”) 29% of farmers consider inclusion of their land into N2000 as desirable, mainly because of the availability of agri-environmental schemes, and another 14% sees it as an opportunity for themselves. Only 9% of farmers claim that N2000 causes limitations to their personal development. Estimations made by scientists states that in the region at least half of farms will be abandoned due to lack of successors in the future (Bortłumiak and Kłodziński 2011).

3.2. Integrated conservation

3.2.1. Animating ideas in support of improvement of connectivity

Ecological connectivity in Poland continues to be, in the opinion of some experts, relatively high, especially when comparing to other EU-15 countries. This is mainly due to a relatively poor road infrastructure over the country rather than successful nature conservation policies. Connectivity is regulated mainly within the biodiversity protection sector and spatial planning regulations, wherein general local implementation and plans are more powerful by law than those at regional or national levels. However, more progress in ensuring connectivity has been done on the regional and national levels than locally. In Polish regulations, connectivity is included in the Nature Conservation Act, Law on access of information about environment and its protection, and environmental impact assessment. It will be also included in the national strategy on spatial planning for 2009 to 2033 (in preparation) and in the protection plans for Natura 2000 sites.

Apart from state regulations, a bottom-up initiative on developing the concept of TEWN (Trans European Wildlife Network) for Central and Eastern Europe was undertaken by Mammal Research Institute at the Polish Academy of Science and Association for Nature “Wolf” (NGO) (Schwaderer 2009). The goal of the network is to preserve the less fragmented habitats in Europe, threatened especially by developing road infrastructure, by developing a sys-

tem of ecological corridors and improving connectivity criteria in assessing environmental impacts of European transport infrastructure development. Results of this work are referred by the following experts.

Currently there are two concepts of ecological corridors for Poland, and implementation of both is strongly assured by law. Both networks are developed on the basis of different indicator species and approaches to international connectivity. The idea of both corridor networks is to provide general guidelines for preserving ecological connectivity, which needs to be implemented and studied in more details on regional and local levels, and included in spatial development plans. ECONET-POLAND developed in 1996, was the first one and was developed within the IUCN project for Eastern Europe. It stemmed out of common IUCN methodologies used in other Central European countries participating in the project (Liro 1995). The other concept was developed in 2005 within a project contracted by the Ministry of Environment. The goal of the network is ensuring connectivity of Natura 2000 habitats (Jędrzejewski et al. 2005; Jędrzejewski 2009). The network consists of nodes – most crucial protected areas (of different kinds, not only Natura 2000 sites are considered in the concept) or vast forest areas, and the corridors that link them. The network is designed with a potential for linking with protected areas in the neighbouring countries. It builds on the ECONET-POLSKA concept. Despite the fact that the project is not grounded in law, it inspires research, spatial planning, and is used in assessing environmental impact of investments on connectivity (especially roads and other linear infrastructure). Until 2009 information about proposed corridors was taken into consideration in regional plans of 10 out of 16 regions in Poland. There is an identified need for involving state conservation bodies (Ministry of Environment) in further works on the concept and its implementation, providing compatibility with PEEN (*Pan-European Ecological Network*), and making more direct links to the concept of National Strategy of Spatial Development 2009-2033, which is currently in preparation.

Independent ideas consider concepts for ensuring ecological connectivity of highly urbanized areas (cities), an example of which is the Krakow Ecological Stability Network (SSEK – Sieć Stabilności Ekologicznej Krakowa) (Degórska 2009). It provides expertise on ecological systems within a city and guidelines for implementing it into the urban spatial development plan. However, currently SSEK seems unlikely likely to be implemented.

Important instruments of ensuring connectivity are single projects for studying and ensuring connectivity of particular species populations. Within the LIFE Nature funding scheme there is currently a project aiming at designing ecological corridors for Polish bison population (Kowalczyk 2009).

For assessing connectivity, there is an identified need for monitoring the effectiveness of mitigation methods such as road passages for animals, and involving the Ministry of Infrastructures (Mysłajek et al. 2009, Nowak and Mysłajek 2009, Walasz 2009a). According to available literature, there is a need to develop an information system and data base with monitoring data, corridors and mortality of animals on roads, monitoring critical spots.

3.2.2. Actors and their roles at multiple levels

Spatial development strategies are prepared on all major administration levels: national, regional and local. At national level the main actors are the appropriate ministries (Ministry of Regional Development and Ministry of Environment; Ministry of Infrastructure), National

Railway and General Directorate of Roads and Highways (GDDiA Generalna Dyrekcja Dróg i Autostrad). Regional level comprises of regional authorities and regional departments of railway and road administration. The concept of connectivity and ecological corridors is currently being well implemented at national and regional levels; however the real systematic preservation of connectivity can be assured only through local spatial development plans (Parusel et al 2009). National and regional strategies can influence large investments (e.g. regional or national roads), while local plans regulate majority of other forms of development, including building, land use change, etc.

3.2.3. Formal institutions

Ecological corridors are being considered as the main tool for ensuring connectivity; however their proper functioning depends on a broader set of formal mechanism and instruments, mainly in nature conservation and spatial planning (Pchalek et al 2011). Typology of national regulation with importance for ensuring connectivity, suggested by WWF, is presented below:

- Regulations that create protected areas – Nature Conservation Act (Ustawa o Ochronie Przyrody (Dz.U.2004.92.880). The act explicitly refers to ecological connectivity only in case of Landscape Protection areas that have a function as ecological corridors. The act introduces ecological corridors, defined as “areas that enable migration of plants, animals and fungi”. The provided definition is considered too general for explaining the role and creation of corridors. It is unclear whether ecological corridors should be a separate type of protected areas or consist of existing protected areas. The current Act only offers protection the parts of corridors that are within other protected areas. Neither ecological / regional connectivity nor ecological networks are defined.
- Regulations rationing the use and management of the environment and its elements – regulated mainly by the Nature Conservation Act (Ustawa o Ochronie Przyrody, Dz.U.2004.92.880), but also other regulations on protected areas (e.g. international conventions. Main instruments here consider: planning instruments for protected areas (considered as most important for ensuring connectivity), instruments in spatial planning (considered as necessary for implementation of other available regulations on connectivity), and planning instruments in water management and flood prevention. There is no obligation for preparing any planning instruments (plans, strategies) for Landscape Protection areas – the only form of protected area that, by law, can be designated as an ecological corridor. Management plans are required for Natura 2000 sites (plany zadań ochronnych), national parks, nature reserves and Landscape Parks (plany ochrony).
- Spatial planning regulations – mainly Act on Planning and Spatial Development (Ustawa o planowaniu i zagospodarowaniu przestrzennym, Dz.U.2003.80.717). The act defines three levels of spatial planning (national, regional and local), that should account for protected areas and nature conservation criteria (defined by other regulations). It imposes a need for applying strategic environmental assessment in spatial planning and other eco- physiographic assessments. The regulation also impose the needs for “sustaining balance in natural environment” and “sustaining basic natural processes” – the latter is especially regarded as an important criteria for ensuring and restoring connectivity of Natura 2000 areas.
- Environmental impact assessment regulations – regulated by Law on the availability of information about the environment and its protection, public participation in environmental protection and environmental impact assessment (Dz.U. 2008.199.1227,

Dz.U. 2008.25.150). Interpretation provided by WWF (Pchalek et al 2011) concludes that ecological connectivity is a valid and required criterion for environmental impact assessments; however in practice it is usually not applied. Since the procedure of approving assessment reports allows certain flexibility, ensuring better recognition of connectivity issues in assessments should start on changes in practice (e.g. creating examples of judicial decision).

- Institutional regulations – the Nature Conservation Act (Ustawa o Ochronie Przyrody (Dz.U.2004.92.880) establishes the organisations responsible for nature conservation and advisory boards. Regarding connectivity and functioning of ecological corridors, there is no clear division of responsibilities for establishment / selection. Currently the main responsibility is delegated to RDEP, however this is mainly with regards to the connectivity of Natura 2000 sites. There is no regulation delegating responsibilities for ensuring connectivity between or outside protected areas. The State Forests are responsible for connectivity of forest areas.
- Financial regulations – defining responsibility for assuring financial resources for nature conservation, derived from institutional regulations. The main source of funding for connectivity is the national budget, distributed through administration with given responsibilities / competences related to connectivity. Currently there are no long-term financial plans regarding ensuring ecological connectivity. There is a potential for financing connectivity of Natura 2000 sites with the use of other funds (e.g. National Fund for Environmental Protection and Water Management, EU funds).
- Regulations of technical character – procedures on the establishment of normal standards, e.g. regarding road passages (corridors) for animals. They are of incidental character, related to other particular legislations.
- Regulations considering responsibility for compensations for limited use of properties - Law on availability of information about environment and its protection, public participation in environmental protection and environmental impact assessment (Dz.U. 2008.199.1227, Dz.U. 2008.25.150).
- Regulations considering responsibility for damage in environment - Law on availability of information about environment and its protection, public participation in environmental protection and environmental impact assessment (Dz.U. 2008.199.1227, Dz.U. 2008.25.150)
- Rules of environmental protection – general principles of comprehensive protection, prevention, precautionary principle and polluters pay, defined in Law on availability of information about environment and its protection, public participation in environmental protection and environmental impact assessment (Dz.U. 2008.199.1227, Dz.U. 2008.25.150)

Currently ecological corridors are sufficiently preserved only in parts that lie within existing forms of protected areas, e.g. landscape and national parks or Natura 2000 areas, which provide legally binding restrictions for spatial development plans and require environmental impact assessments for investments affecting connectivity (Kopiliński 2009). Connectivity of Natura 2000 areas is legally ensured in the Nature Conservation Act by stating that actions cannot be undertaken if they have an impact on the goals of Natura 2000 network, where the goal of integrity of the Natura 2000 network can be interpreted as connectivity between areas (Wodzyński 2009). According to this interpretation, environmental impact assessment (EIA) for investments on and between Natura 2000 sites should account for connectivity aspects, however it is not yet a common practice. Ecological connectivity is also a criterion for strategic environmental impact assessments (SEIA), sufficiently evaluated recently for

the four major transportation (road and railway) development plans, including the long term plan with perspectives for 2033 (Pasek 2009). The main guidelines in the strategic assessments consider avoiding interference with ecological corridors where possible and assuring sufficient number and size of passages for animals as mitigation means. The use of EU structural funds also requires EIA to address the impact on migrating animals (Samplawski 2009). The environmental impact of all EU funded investments is in general more carefully verified than non-EU funded development. As the majority of infrastructure investments in Poland use EU funds, sufficient assessment of impact on the environment in general, and many aspects of connectivity in particular, are formally ensured.

Patency of ecological corridors is decreasing because the existing road infrastructure is being improved by a project undertaken by the General Directorate of Roads and Highways (GDDiA Generalna Dyrekcja Dróg i Autostrad) “Increasing patency of migration corridors” (Mickiewicz and Nowacka 2009). The project focuses on passages for animals and other mitigation means. Currently (state on 2008) there are 337 passages enabling animal migration, a further 810 are planned within new roads and highways.

Despite the fact that the concept of ecological connectivity is being taken into consideration in a number of plans and evaluations, ensuring connectivity (via ecological corridors implementation or the use of mitigation means) is not strongly legally grounded in Poland (Ławreszuk et al 2009). There is no obligation for spatial planning at a local level to take connectivity into consideration. There is a lack of a coordinating institution to implement and further work on existing concepts on ecological corridors. No restrictions apply for farming activities that affect connectivity. Selected, but large and important road investments are based on the rules of so-called Special act (“Spec ustawa”) aiming at reaching the 2012 plan of transport infrastructure development for the Euro 2012 Football Cup. The Special act makes the consideration of environmental issues less rigid and not enough time is given for EIA preparation. Constant changes of the legislation on spatial planning since 1990 have brought permanent incoherence within the environmental laws. Implementing national regulations and guidelines for ensuring connectivity into practical, local development rules is extremely difficult, due to the lack of coordination, hierarchy and coherence, which should be ensured in spatial planning legislation. Currently, local plans of spatial development are most binding for investors; however, their connection with national regional strategies is voluntary and depends on the particular agreements between regional and local authorities. The majority of the Polish territory lacks any kind of valid spatial development plans (80% of territory in 2008). Development in the areas not covered by valid plans is based on more general, less restrictive and less democratic laws, which do not account for ecological connectivity (Kolpiński 2009).

Experts interviews completed within the SCALES project confirmed that bad spatial planning is the main obstacle to ensure ecological connectivity in Poland. The issue of spatial planning was one of the most topical issues discussed during organized focus groups and interviews. The majority of respondents heavily criticized the current Polish legislation on spatial planning and the way it operates in practice: *“Spatial planning barely exist. Or it is symbolic”*. The lack of local spatial development plans results in thousands of separate administrative decisions made by local officials. Usually those decisions are made by taking into account local economical needs or other local circumstances. *“This is like a legal way of nature and landscape devastation. This procedure [single/separated administrative decisions] does not allow for a rational, systemic development of built-up areas but even takes a form of black-*

mail. If the local official makes a negative decision on so called "building conditions", he or she will be then subjected to a pressure of various factors, administrative and external, e.g. being called in the front of the court etc. This is because he/she has to justify his/her negative decision so in practice, the investment is approved, simply just to avoid troubles".

Many respondents think that finding an effective way to ensure connectivity using current legislation seems to be difficult or even impossible. *"We have been intensively working on a proposal on how to effectively keep the connectivity among the protected sites also those which are not included in Natura 2000 Network but form an ecological corridor and stepping stones system. WWF is gone to propose an alteration of a current legislation on that issue. In general, connectivity system would be more based on Natura 2000 sites, simply because it is considerably effective form of nature conservation in the Polish reality". "But again, realistically to fulfil that, management plans should be developed everywhere over all the protected areas, but they are not".*

3.2.4. Funds and resources for integrated conservation

So far there is no fund or financial support dedicated directly to increasing regional connectivity of protected areas. It is, however, possible for NGOs or institutions that manage protected sites to get financing from the National Fund (from national resources or external ones like LIFE+ projects or EEA and Norway Grants) or within the Operational Programme Infrastructure and Environment. In the majority of these financial sources, integrated conservation seems to be an important part of the project requirements. Current financing schemes (2007-2013) include aspects of regional connectivity and integrated conservation. The example of this is the set of variants within packages 4 and 5 (Protection of endangered species and habitats outside Natura 2000 sites and Protection of endangered species and habitats on Natura 2000 sites), which are exactly the same. The aim of those packages is to protect the same habitats and species, no matter if they are included into the Natura 2000 network or not, which can increase the integration of conservation actions. All the requirements and restrictions concerning endangered habitats are the same, only the payments are different (higher on Natura 2000 sites).

3.2.5. Informal rules and practices

While consideration of ecological connectivity is not strongly enforced by law, its practical implementation depends on more informal rules, knowledge and preferences of stakeholders within public administration. The concept of ecological connectivity is included in numerous regional spatial planning strategies, even though it is not obligatory, and there are no common guidelines for methodologies (Miłosz-Cielma 2009). Most regions referred in their plans to existing concepts of ecological corridors (ECONET-Poland and the concept described in Jędrzejewski et al 2005), only one was based on their own assessments. On the local level, consideration or lack of consideration of connectivity issues in spatial planning is even more dependent on informal rules and practices; however this issue has not been described in literature.

Among practices and rules that hinders capacity to improve connectivity, the following ones are being mentioned in the literature: lack of common, established methodology of measuring and ensuring connectivity in spatial planning; strong development pressures and rapid increase in number of investments after EU accession; general disorder in planning and development – lack of its integration between local and regional levels; lack of engagement of

local authorities in ensuring connectivity; road planning rarely includes passages for animals in the preliminary plans and budgets before preparation of EIA reports, which makes it more difficult to fund a sufficient number of such facilities later on in the plans (Ławreszuk et al 2009); lack of integration between regional mitigation means and lack of monitoring of their functionality (Mysłajek et al 2009, Nowak and Mysłajek 2009); complexity of EIA procedure hinders the use of EU resources, as an effect development pressure influences quality of EIA reports (Sampolowski 2009). There are no existing economic incentives designed to support connectivity, while the relevance of other existing incentives that can improve connectivity is very low.

The Polish concept of ecological corridors refers to the theory of ecological patches and corridors, including areas with a higher share of semi natural habitats (Degórski 2009). The concept does not only take into account population criteria, but also considers criteria of ecosystem stability within the country and refers to more general environmental, social, health and life quality functions. The current concept is based on migration trails of large mammals as selected indicator species for the needs of connectivity of other species habitats. It indicates the need of afforested corridors. Currently, depending on the region, from 30 to 100% of proposed corridors are covered with forest.

Implementation of ecological corridors ensuring connectivity in the regional spatial development strategies is based mostly on the two existing national concepts of corridors (ECONET-POLAND and concept described in Jędrzejewski et al 2005), and sometimes it also uses additional, ordered assessments (Miłosz-Cielma 2009). Methodologies of such approaches and ways of matching information from different concepts differ significantly between regions. The use of international concepts and ensuring its coherence with postulated ones is insufficient. Separate methodologies are considered for river ecological corridors (Jelonek 2009) and urban ecological corridors (Walasz 2009b, Degórska 2009); however these are rarely implemented.

The concept of Green Infrastructure (GI) was raised during focus groups and interviews when connectivity issues were discussed. GI is still not widely recognized by practitioners or scientists in Poland. It is recognized and understood differently by different people, and there is no common definition of the concept at all. In general however, it is seen as a means to achieve a better connectivity and a more effective conservation outside protected areas as well as a good tool to gain public support and understanding.

3.3. Scales issues in regulatory regimes

Even though scales issues are not explicitly considered in the Polish nature conservation policies, various scales were described as important for effective conservation. The following scales and their relevance for biodiversity conservation were discussed with experts and stakeholders during focus group interviews organized within the SCALES project.

Spatial scale – discussed in relation to spatial planning and infrastructure development. Different levels of this scale are prone to conflicts with public or private investments. The effectiveness of conservation in spatial scale was understood by the respondents as ensuring connectivity of the protected areas. Mismatches between the needs for ensuring connectivity and existing policy instruments were identified and considered as the biggest problem of spatial planning (see above in chapter 3.2). The main instruments relevant for spatial

scale, in the respondents opinion, are: spatial development plans on local and regional level, whereas environmental impact assessment is not scale sensitive mainly due to lack of reference to any connectivity criteria.

Jurisdictional scale – defined differently: (1) as relations between public administration on European, national, regional and local level, (2) relations between public administration of different sectors, (3) relations between state and non-state actors. Problems on different levels of administrative scale were discussed mainly in the context of the latest national reform of nature conservation administration.

Temporal scale – was found relevant but not much discussed by participants of any focus group. Temporal issues of conservation were put in context of scientific background of decision-making in conservation.

Networks scale – understood as the role of stakeholders, social groups and a third sector in conservation. Division between this scale and administrative scale was not clear to the respondents.

Ecological scale – discussed in relation to various forms of protected areas, especially those focused on species and habitats compared to the landscape protection. Latest reforms and accession to the EU were the main context for discussing this issue. Additionally participants of regional and central focus groups listed three issues relevant for discussing conservation regulatory regime. The issues can be framed as types of relations between the scales listed above, or as separate dimensions of the nature conservation system:

Welfare and economic activities – an important context of environmental policy making, determines political priorities given to either development and consumption, or conservation and protection of natural resources. In respondents' perception, conservation priority is a domain of higher levels of welfare, while development and consumption – mid- and lower levels. A need for economic development is prioritized in political discourse in Poland, based on arguments about the need to “catch up with the West” in terms of increasing welfare and economy.

Information flows and exchange, including domains of education, research, and monitoring – information and its' flow was discussed in different aspects. The role of different types of knowledge production and distribution was mentioned e.g. scientific and practitioners' knowledge; projections and explanations. Flows of information considered both informal communication between stakeholders and designed education targeted at different groups (professional groups, students as future practitioners, general audience).

Power and politics – described as relations between different actors at various administrative levels and sectors. Power is related to existing political discourses. Discourses produced on local and central levels can significantly differ. Those dominating on a central level can influence policy design and implementation, while local discourses affect practical activities and ad-hoc decisions.

3.3.1. The nature conservation in the EU Member States – a role of the EU system?

Accession to the EU rapidly increased importance of international obligations and forced important changes in the national conservation system. Relevant changes in the last 7 years included: (1) increased effectiveness of environmental impact assessments and reports, including intro-

duction of strategic assessments, (2) introduction of habitat conservation, (3) possibility of appealing to superior institutions – the European Commission and European Court of Justice – in case of national state's failure to observe environmental standards and regulation. Introduction of new obligations and approaches to conservation “refreshed” the Polish conservation system, making it more aware and open to answering new challenges, such as biodiversity loss and climate change. *[Polish forms of nature conservation]* „even before we became a member of the EU they (the national forms of nature conservation) were a bit old fashioned, simply not suitable to the situation in due time. E.g. landscape parks should have been re-functioned in the mid 90s.” European legislation and its transposition is perceived as being more restrictive and effective than the previously existing one, not only because actual restrictions were introduced, but mainly due to a better enforcement. The EU is also perceived as less dependent on politics than national states which make it easier to introduce more restrictive environmental regulations.

„A potential elector has much bigger influence on the national government (it is very evident) than on the UE authorities. There in the EU there is a kind of chaos, they all (EU membership countries) mix altogether and get into the EU government, elect the Commission, which is in power. It definitely has a lower effect on the local development. That is why the EU system may act in a more predictable way, at more global level than the national authorities. Almost all the EU membership countries are fighting (struggling) with the European Commission. There is possibly no EU country who sympathize with the Commission and are very much in favour their policy (...). But at the same time there are new tools appearing which will in a more effective way serve the nature conservation. The nature conservation we deal with” Legitimization of the EU's influence on the national nature conservation system, especially designation of Natura 2000 areas, is still a problem at a local level. Numerous conflicts still exist and both citizens and local authorities often express their discontent when sites are located within their municipalities. Problems of legitimization exist partly because of the way in which the need to designate Natura 2000 sites was explained to the public during the first years of the implementation process. It used to be argued that Natura 2000 designation was imposed by the EU and had to be accepted as such. The relevance of the Natura 2000 network for protecting the environment and its potential positive role for the local societies was omitted in communication because it was more difficult to justify. Currently such an approach is considered a mistake as there is a growing recognition of the need for engaging local authorities and private owners in managing Natura 2000 areas.

3.3.2. Competition and effectiveness of different protected areas

Implementation of European directives resulted in competition over allocation of human and financial resources between existing and new protected areas. Reform of nature conservation administration introduced in 2008 was aimed at improving management of Natura 2000 network, while authority over areas of landscape protection and other smaller forms of nature protection was given to general regional and local administration, who are potentially least interested in ensuring effective protection. As a result, species and habitat conservation is relatively well ensured, while protection of landscapes, potentially more relevant for ensuring ecological connectivity, is being marginalized.

„Currently in Poland all the resources and strength are focused, directed towards Natura 2000. It results in neglecting the way the other elements of the environment are protected.”
„We feel that everything we did, achieved in nature conservation until now was somehow abolished, lost, discontinued and changed for Natura 2000.”

While resources are crucial for proper functioning of protected areas, lack of effectiveness is also a result of imprecise and incomplete regulations.

“I know landscape parks, which operate perfectly, but this is mainly thanks to sometimes heroic (very devoted) employees. In general however, system as such in the in the whole country scales is simply very weak to make that form of the nature conservation effective enough.”

Natura 2000 is perceived as a very effective regulation because of clear procedures and defined goals. Effectiveness in this case was understood as a combination of clear targets, and ensured measures and means for its achievement. In comparison, other forms of protected areas may lack either precise explication goals (e.g. what is a reference state) or instruments for ensuring that the goal will be achieved. *„A real effective forms of nature conservation are those connected to Natura 2000 Network. And that is because of an immediate transposition from the EU legislation to ours. In case of other forms of the nature protection regulations were developed nationally, and in majority they are ineffective and spectacular. In general, it is stated that there is a need of nature protection but not mentioned what a final effect of the protection policy might be. In case of Natura 2000 it is clearly defined.”*

Lessons learned from transposition and implementation of Bird and Habitat Directives should be used to improve quality of other regulations *„while protecting national forms of nature conservation many instruments of N2000 should be taken, such as EIA. It would result in coherence and high effectiveness of the whole national system”*. Lessons referred to by respondents consider development of a legislative system that will support the use of available instruments (both command-and-control, such as EIA, as well as contractual, such as agri-environmental schemes) for effective conservation of protected areas or outside protected areas. With regard to national parks, current discussions consider mainly the role of local authorities and a need for their approval for creation or enlargement of the protected area – or more precisely: possible withdrawal of such requirement from a current law . The use of a broader selection of policy instruments has been discussed with regards to ecological corridors, supported by required changes in legislation.

Protected areas based on national legislation are not the only example of ineffective forms of conservation. Biosphere reserves were indicated as an example of a purely “paper” protected areas not really secured by the law. Ineffectiveness in this case considers weakness of protection measures and an inability to hinder activities and development that potentially affect the subject of protection.

Experiences achieved from the implementation process and practical functioning of Natura 2000 were not taken into consideration while introducing other European regulations considering natural resources, such as the Water Framework Directive. There is an unclear distribution of national competences and responsibilities considering implementation of this particular directive *„The biggest problem is a continuous “war”, disagreement between the Ministry of the Environment and the Ministry of the Agriculture. And that is classic Polish incompetence. Firstly, there is the Deputy of the Environment and the National and Regional Water Boards which dictates how to manage waters which are essential for the national economy. Secondly, there is an agricultural sector which operates at various administration level starting from the national (a President) going down to the provincial (regional) level (Voivodship Water Melioration Boards) which co-ordinate water usage for the agriculture. (...) And the problem stems from the fact that besides the territorial division there is also functional one (...) And in*

practice, the Deputy of the Agriculture Ministry decides how to fish the certain water reservoirs and how to change the ichtiofauna there, and at the very same time the Deputy of the Ministry of the Environment is responsible for the ecological quality of the same water. And the Main Nature Conservator is in charge of protecting the Natura 2000 water species.” WFD,, is completely incompetent” (literally: „A competence spaghetti”) [RDWM]

3.3.3. Nature conservation on national, regional and local levels in every day usage

Currently the main “operational” regulations considering Natura 2000 and other relevant aspects of the Polish conservation system are based on the regional level of public administration. While transposition of European rules into national legislation is made on central level, actual implementation of EU Directives takes place on the regional level. For nature conservation, the most important regional actor is RDEP, responsible for management of Natura 2000 sites, but also various site selection processes, and environmental impact assessments. Despite the relatively independent position of RDEP from direct political influences, its activities are related to various actors and institutions at local and national levels. *“[a pressure is only up to a particular investment (...) on the national level-- the bigger investigation the more severe tension. On the regional level there is another type of pressure connected with a need of spending funds (mainly Regional Operation Programs), which usually need to be allocated as soon as possible. And finally on the local level a particular investor responsible for completing a certain asset tries to attract locals by offering variety of activities such a new school, taking people for excursion or organizing any studio visits. Such a policy is quite common. And real regulations are somehow not taken into account there”* While there are smaller hindrances while considering cooperation with central institutions, a variety of problems seem to appear at the local level. Even if the mechanisms or procedures concerning decision-making exist, local government officials are usually strongly influenced by local circumstances (politics, networks, PR, informal relations, connections etc.). *„[at the local level] there are local groups of interests who are influential. And at the highest – national level there is only a politics”.*

The problem of nature conservation and protection at a local level exists not only because of drawbacks of regulations, but mainly because of a weak enforcement system. Enforcement of regulations at a local level is dependent on willingness of local authorities and their personal recognition of the regulation’s importance. *“I think that proper mechanisms exist but there is no will to apply them, local official does not feel like being a policeman (...) They often say ‘I know these people, they have no money, it’s an old lady and so on and so forth... so the law is being devalued and distorted at a local level.”* The problem considers mainly smaller-scale investments or the construction of family homes, which should be regulated with local spatial planning law and may potentially affect protected areas that are within the authority of regional or local public administration other than RDEP (e.g. landscape parks). Weak enforcement arises from an unwillingness to apply the regulations in full and allowed exceptions due to the perceived low impact of investments.

Experts indicated the lack of intermediate level between the local and regional ones. A significant number of problems cannot be solved only at a local level and cooperation among municipalities is crucial but currently still not common.

Another factor influencing functioning of administration in Poland are attitudes of local authorities’ representatives towards regional and national administrative bodies – often un-

friendly, critical, and inculpatory. *“There is a visible gap between local community and Polish society or international society. People perceive some regulations as imposed. (..) The same goes for administration – local authorities treat regional and national levels as those that are doing nothing but pushing too much of their responsibilities and duties to lower levels.”*

3.3.4. Integration and strategic approach to the nature conservation

Evaluation of nature conservation systems from the perspective of different administrative levels and sectors raised questions about the integration of different policy domains and strategic planning. The latter was heavily criticized as being insufficient *“The problem is that we develop certain forms of nature protection trying to conserve nature using them. But realistically within the country we do not have any real conservation policy. Nobody is really taking care of developing a coherent policy”*.

Integration between sectors is not only secured between “environmental” sectors and other domains, but also between those responsible for various natural resources: fishery, agriculture, nature conservation. A good example is the latest National Spatial Development *„it was developed in such a way that 16 or 18 experts were asked to complete a sectoral policy. One specialist focused on water, another on agriculture. Then all reports were combined, a map of the country was drawn, appropriate symbols were put over the map and that is the way the development of the country was planned (...). But there is a fact that sectoral policy generates conflicts (...). And that was not mentioned in the report”*

There is lack of integration between different actions undertaken at a local level. Additionally, nature conservation is considered to be less important than other domains of public actions: *“We should try to integrate all our actions both on local and governmental level: protecting the nature by historical heritage conservation, work performed at governmental level paralleled with local initiatives. We all who work for nature conservation recognize that in most cases it is not influential at all. If we do not have any tools in various sectors: the landscape management, water management, education, economy what can we do? We cannot even say that that a particular bear is important as a species, we are simply not able either to document or to calculate it”*.

Insufficient integration between nature conservation policies and regional planning results in limited or no funding allocated to conservation (as described in chapter 3.1.4.). *“In some sectors there is no knowledge or acceptance of global perspective that natural environment need to be protected irrespective of the sector. There is no awareness that just having various forms of nature conservation is not enough.”*

3.3.5. Information and knowledge

Access to the information and knowledge resources was indicated as an important context of evaluating performance of conservation system. There has been a constant deficiency of information, mainly those needed for decision making purposes especially on the local level. Knowledge about global environmental processes and their causal relationships has been and still is more accessible than knowledge about individual cases at the local level. It however seems to be difficult for lower level stakeholders to access. *„At the global level there is a need of data to develop a model. They are much more general, so less accurate, indispensable, let’s say (...) the further down (towards local level) the data should be more detailed to forecast, model, and introduce various activities and honestly in majority of cases such*

detailed data, which are required is not available". However these issues are not expected to be sorted out. A lot has already been improved in terms of systematic data collection, but decision making and management will always operate in conditions of uncertainty. "Poland is a large and diverse country in terms of nature. Knowledge about this diversity will never be sufficiently completed in comparison to, let's say, The Netherlands where accumulation of natural scientists per given surface is much higher and therefore a development of monitoring is much more advanced. There is a need for constant improvements [of monitoring programs] but available information will never be sufficient."

The environmental knowledge we possess should be used to set priorities for nature conservation. Currently activities conducted within various public and non-public conservation programs are not in accordance of reasonable priorities, which result in worse integration and effectiveness. Examples given by participants of the focus groups included well-funded programs aiming at protection of the species and habitats that cannot be sustained in the long term due to unfavourable changes in the environment occurring on higher levels (e.g. climate change).

The manner in which knowledge is used and spread is also an issue of scale. Within the public conservation system the flow of information is top-down and ineffective. While proper expertise is available on a national level and within administration units responsible for the nature conservation, there is often a lack of very basic awareness of environmental processes within other sectors of public administration. *"Public officers are still very poorly educated. Evaluation of every investment is just limited to a question of what is more important: a frog or a human being."*

4. Conclusions

The national regulatory model for biodiversity conservation in Poland consists largely of rigid command-and-control regulations. It is still rather strongly centralized, despite important changes in the public administration of nature conservation, which led to the delegation of responsibilities (mainly for implementation of Natura 2000) to regional level. Most visible changes caused by the establishment of RDEP took into account the implementation of Natura 2000. While approaches used during designation of sites were generally rather unified, management is more adaptive and reflects particular local conditions. Delegation of responsibilities to regional level is also regarded as highly important because of its resistance to political influence and other pressures (e.g. development-ones) that are more present at local and central level.

In general, respondents of the following study met difficulties while explicitly discussing scale issues, irrespective of the fact that they were experts or regular employees of various nature protection institutions. Nevertheless important scales and examples of interplay were described while referring to particular issues in functioning of nature conservation. According to respondents of the study, the main flaws in current system are due to complex and insufficient regulations in the first place; however mismatches between institutions (including division of competences) and conflicts they may potentially cause were also indicated. Main interplays within the legislative system considered nature conservation, spatial planning, forestry and water management sectors. Integration between the different policy domains is not only hindered by lack of formal regulations, but also, even more importantly, by attitudes of individuals working for different sectors. Looking at organizational aspects, relations between administration for nature conservation and forestry are stereotypically most conflict-prone, however in practice regulations regarding nature conservation are being well applied in forestry planning instruments and measures. With respect to protected areas, current policies favour species and habitat-oriented conservation (in terms of funding, human resources and providing more rigid regulations), while landscape protection has important flaws that should be corrected. It is a result of “competition” for funds and human resources that happened during implementation of Natura 2000 and securing resources for its functioning.

The importance given to Natura 2000, that weakened national structure for protection of the landscape, was a consequence of a focus on the EU policies and urgency in its implementation. It has to be stressed however that Natura 2000 is seen as one of the most effective forms of nature protection over the country with respect to the strongest regulation enforcement. New site-selection processes are rather unlikely in the future (despite enlargement of Białowieża national park or rather vague plans of creating new national parks). Currently priority is given to effective management of Natura 2000 sites and ensuring connectivity through better spatial planning.

In the long run ecological connectivity and nature conservation outside protected areas are regarded as crucial for ensuring that the environment remains in a favourable state. Potential for ensuring connectivity is seen mainly in improving existing instruments, such as ecological corridors, Natura 2000, better integration between spatial planning and nature conservation. The importance of connectivity in the broader context of creating green infrastructure is not yet well recognized. Concepts for ensuring connectivity have been actively

developed by both science and policy makers, however they are mostly voluntary or of a weak enforcement nature. Governance mechanisms that are indicated as promising for promoting connectivity area: better consultation practices in special planning and EIA processes and improved spatial planning on local level, integrated with strategic planning at regional level. Recently a need for legislative changes for better ensuring of connectivity has been addressed by WWF, a comprehensive analysis of flaws and proposition of changes were presented (Pchałek et al 2011).

Very little importance was given to local authorities and communities (including a third sector and civil society institutions at local level) concerning nature conservation. The success of nature protection is perceived to be a result of good top-down policy implementation, mostly due to lack of confidence in the effectiveness of bottom-up approaches. Despite increased participation of stakeholders, importance given to nature in other sectors of public administration and general public attitudes towards nature were considered as important or even crucial. The success of conservation – in the eyes of respondents – depends on rigid regulations rather than voluntary measures. The example of interplay in the areas of ecological connectivity and spatial planning supports such observation only partly. Flaws in legislation considering ecological corridors and insufficient implementation of spatial planning on a local level indeed create an obstacle for ensuring ecological connectivity. However planning processes on the regional level broadly recognize and voluntarily account for the need of ensuring connectivity. An important exception is the cooperation between environmental NGOs (e.g. WWF, Polish partner of BirdLife) and public administration for nature conservation at central and regional level, both of formal and informal character. Local stakeholders and private land owners are being engaged to some extent (e.g. in development of Natura 2000 management plans) however they are perceived rather as target of education, or providers of information, rather than partners deciding about the goals of conservation. A lack of knowledge about environmental processes and current regulations considering the environment at the local level has been considered as one of the main barriers for meaningful engagement of stakeholders.

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